Roller Coaster Tycoon II:
A Teacher's Guide for its Effective Use in the Classroom

Written by

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December 2004

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Introduction

About Roller Coaster Tycoon II

Roller Coaster Tycoon II is an exciting simulation-strategy game made for the PC platform involving the construction, organization, and maintenance of a variety of amusement parks. The game boasts many challenging capabilities, including the creation of virtually any conceivable roller coaster and thrill ride, terrain configuration, and even theme parks mirroring actual existing parks such as Six Flags. Although the game can be suitable for a variety of age groups, its full potential for learning is really achieved at the middle-school level (7-9th grade) due to its many higher-level thinking and organizational skill requirements. From the initial moment of play, participants are involved in a comprehensive simulation that requires skill, concentration and planning, skills that make the game highly suitable for educational use. The game's educational applications are evident as participants take on the role of Theme Park Tycoon to:

- Create countless park scenarios and situations
- Generate profits based on expenditures, income, loans, etc.
- Assess the value of different variables such as admission fees and concession pricing
- Plan and accommodate for various terrain and land characteristics during the ride's construction process
- Use laws of physics and motion in planning for ride variables
- Hire necessary labor force to support the park and its maintenance needs

- Appreciate the need for security and order within a crowded setting
- Find ways to increase popular interest
- Manage budgets

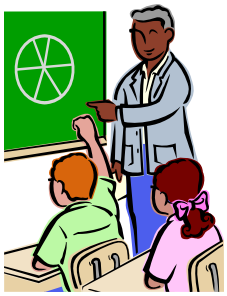
It is easy to see why *Roller Coaster Tycoon II* is a natural choice for educational integration. Students are sure to enjoy the game's challenges without getting bored. Little "SIM" People turning green after riding a hair-raising, death-defying ride does not hurt, either☺!

The Importance of Simulations

It is often said that effective teaching involves learners on a personal level. Constructivist theory acknowledges the need for learners to arrive at understanding through personal experience, not simply repeating what is taught on a linear level. This is where simulations take the learner away from the old, uneventful teaching styles of yesterday and into a whole new realm of interactivity and constant adaptation to new situations. Simulations allow the learner to actually step into a situation and experience first-hand the results of his/her decisions, without the catastrophic consequences of real-life. As a result, simulations offer the learner a dynamic, ever-changing environment that includes the realism of life within an entertaining platform that provides motivation and incentive for success. Because experimentation can be conducted with immediate results, learning takes place at an accelerated pace. In *Roller Coaster Tycoon II* students can simulate every aspect of an amusement park, right down to the thrill of riding a mammoth roller coaster (but only after having done lots of construction, strategizing, and financial planning). In other words, students are motivated to achieve the end result of the roller coaster experience while they

work on complicated problem solving and analysis. Only a simulation can bring reality and theory together in such an effective way.

Classroom Applications



A common misconception is that video games can only be integrated within technological applications. Actually, *Roller Coaster Tycoon II* can be implemented into many areas of the curriculum, not just computer-based instruction. Whether it is used as an independent activity or as an add-on to other existing activities, *Roller Coaster Tycoon II* can be utilized within subjects such as math, science, history, and even art. The simulation, due to its complex and dynamic game play, is very suitable for cooperative group projects, such as culminating tasks. Yet teachers can also adapt its use to serve single student or whole-class instruction, due to its vast flexibility. Here are a few examples:

- Small groups of students can collaborate on topics with a competitive theme, such as designing the most profitable amusement park. Culminating activities such as essays on results, presentations showing completed amusement parks to the whole class, and charting of budget progress can also be modeled in this manner.
- Specific sections of the game can be extracted and used for the desired lesson of the day (example: the budget display to teach about currency values).
- Thematic units on economics, management and mathematics can easily be created, with *Roller Coaster Tycoon II* as the testing ground for the units.

- Single players can be given certain goals to reach as multi-weekly assignments that can be worked on at the student's own pace.
- Writing assignments can be based on the many aspects of the game, such as sequencing of events.

Flow of Instruction

The chronology involved in implementing the game within the classroom will vary according to individual needs, but the general flow should follow the pattern below:

- Initially, some instruction will be required to cover the game's many features and controls (2-3 periods of instructional time).
- Practice sessions aimed at achieving dexterity with functions and controls will follow until most participants feel comfortable with the game (2 periods of instructional time).
- Upon adequate competence, the instructor should present various activities and goals for the participants to follow. This stage can vary greatly in time allotment, given the wide range of possibilities. The lessons presented later in this guide should require about a week's worth of instruction to complete (5 periods of instructional time). Of course, projects such as culminating activities can require an entire semester to complete, and revolve around a single, yet far-reaching, objective or goal that participants need to achieve as individuals or as a group.

Grouping Configurations

Roller Coaster Tycoon II can be implemented using a variety of classroom configurations:

- *Whole Group:* Teacher acts as facilitator using a media-sharing device such as an LCD projector to display, model, and execute various game activities and functions to the entire class from a single computer. Discussions, examples, and other follow up activities can then be created following the lesson for students to work on.
- *Limited computer access* (2-4 computers in the classroom): Students can take turns or work on a rotational basis within small groups to execute activities. Students may complete assignments on an individual basis.
- *Computer Lab* – Students can work individually on tasks, and then work collaboratively to synthesize and present data. Students may also complete assignments on an individual basis.

Standards Addressed

This guide contains two sample lessons modeled around *Roller Coaster Tycoon II.* The lessons effectively address various California Standards in mathematics for grade 7. The teacher will soon find that many other state standards can be

accommodated by using the simulation.

Mathematics: Mathematical Reasoning

1.0 Students make decisions about how to approach problems:

1.1 Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns.

1.2 Formulate and justify mathematical conjectures based on a general description of the mathematical question or problem posed.

1.3 Determine when and how to break a problem into simpler parts.

Objectives

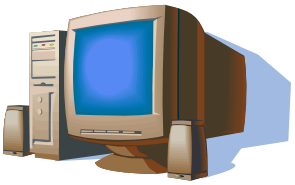
Objectives for the implementation of *Roller Coaster Tycoon II* include:

- Encourage the motivational and high-level thinking qualities involved with video game play.
- Give students the experience of financial responsibility.
- Allow students to work cooperatively on a long-range goal.
- Promote the development of management skills.
- Increase awareness of potential consequences associated with unsound decision-making and events that are unpredictable.
- Increase student's ability to analyze, process and report data gathered during experimental exercises.
- Promote team play among cooperative teams.

Before You Start

System Requirements

Before installing *Roller Coaster Tycoon II*, the following requirements must be met:



- PC platform
- Pentium II 300 MHz
- 64 MB RAM (128 MB recommended)
- Windows 98/ME/2000/XP
- DirectX 8.1 (NOTE: if the game installer detects that your computer does not currently have Direct X 8.1 or higher, it will install it for you, so there will be no need to search online for it or run Windows® updates!)
- DirectX-compatible video card
- DirectX-compatible sound card
- 4X CD-ROM drive (8X recommended – most cd-rom drives found in newer computers are of the 52X speed range)
- 150 MB hard-disk space (200 MB recommended – again, newer computers are up to many gigabytes, with I gigabyte = 1000 MB)

All of these requirements may seem low by today's tech standards, but with many schools having sub-standard equipment, it is possible for some computers to still not meet these basic requirements. If in doubt, contact your school's tech coordinator to verify your computer's capabilities.

Basic Setup

Roller Coaster Tycoon II is a game that is relatively simple to set up:

1) Start your version of **Windows**® (98/ME/2000/XP) and exit all other running programs.
2) Load the *Roller Coaster Tycoon II* cd-rom into your cd-rom drive.

3) If **AutoPlay** is enabled, a splash screen will appear (see below). Click on the install button located on the far left:

4) If **AutoPlay** is not enabled, double-click on the **my computer** icon on your desktop. Find your cd-rom icon, and double-click on it. If that does not work, double click on the **setup** icon after double-clicking on the cd-rom icon.
5) Choose **typical installation**. The installation process can take 4 to 8 minutes, depending on the speed of your computer and cd-rom drive.
6) Follow the on-screen instructions to complete the installation.
7)

Overview of Features

Like any other unfamiliar activity, both students and teacher need time to get acquainted with the many controls and features of *Roller Coaster Tycoon II.* It is recommended that the instructor some time to acquiring such dexterity prior to attempting the lessons that follow. There are excellent tutorials found within the game. They are found in the first splash screen when starting the game. The beginner's tutorial provides an excellent overview of features that will prepare participants for the lessons that follow. The familiarization process can be conducted in the following ways:

- Teacher can conduct tutorials to a whole group by displaying game play using an LCD projector connected to a computer
- Students can independently take the tutorials at computer stations, either individually or in small groups. Groups can then report their experiences to the rest of the class and compare with other groups
- Teacher can display certain game features, such as toolbar functions (see below) as vocabulary lists, word walls, and other types of displays aimed at gaining familiarity with the game's functions.
- **CAUTION:** it may be tempting to copy the game for kids to take home and practice with – doing so violates the game's license agreements, so DO NOT COPY AND DISTRIBUTE THE GAME UNLESS THE PROPER LICENSES HAVE BEEN PURCHASED FROM THE MANUFACTURER!

Below is a list of important game buttons and their functions:

A. Top-left toolbar:

1) ***pause:*** pauses simulation

2) ***save:*** loads or saves games, displays options, allows screenshots (the method used to show these icons to you!), quits game

3) ***zoom:*** zooms the landscape view in or out

4) ***rotate:*** rotates landscape in 90-degree clockwise increments

5) ***view:*** toggles between underground views and other invisible modes

6) ***map:*** displays mini-map representation of park and features

B. Top-right toolbar:

1) ***bulldoze:*** demolishes landscape features

2) ***land:*** adjusts height and slope of terrain

3) ***water:*** creates lakes, rivers and ponds

4) ***scenery:*** creates decorative items such as gardens and statuary

5) ***footpaths:*** builds walking paths, ramps, etc.

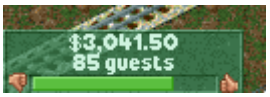
6) ***rides:*** builds new rides

7) ***attractions:*** displays reports for rides

8) ***park information:*** opens park status window

9) ***staff:*** controls the hiring and management of employees

10) ***guests:*** displays information about the park's guests (really fun!)

C: Bottom-left display: 

This toolbar displays the following three types of information (from top to bottom):

1) **Finances:** shows cash available. Clicking on amount displays the financial summary window, a detailed account of loan, profit, and charted information

2) **Guest Population:** shows number of guests in the park – clicking on number invokes the ***guests*** information window

3) **Park Rating:** green line that indicates the park's rating between 0 and 1000 – clicking on rating invokes park rating stats

D: Bottom-right display:

Date/Weather/Messages: displays current date, weather conditions, and important announcements (breakdowns, awards, etc)

Although all of these functions may seem overwhelming at first, rest assured that, after working with the game's tutorials mentioned earlier for a few periods, all buttons and displays become second-nature and very user-friendly!

Lesson 1 –Makin' the Bucks!

Well, it's finally time to get to some real work! Due to the game's heavy reliance on financial management, the first lesson naturally calls for mathematical skills and applications as they relate to reasoning and prioritizing information to achieve a goal. Mathematics are so well incorporated within the game's very essence that the student deals with math at every aspect of the game without even trying, and, has fun doing it! The lesson addresses the following 7th grade mathematical reasoning standards mentioned earlier:

1.0 Students make decisions about how to approach problems:

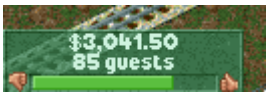
> **1.1** Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns.
>
> **1.2** Formulate and justify mathematical conjectures based on a general description of the mathematical question or problem posed.
>
> **1.3** Determine when and how to break a problem into simpler parts.

The main objective is to create a park that begins to generate profits. From this premise, students are exposed to the many variables that can and do affect this single outcome.

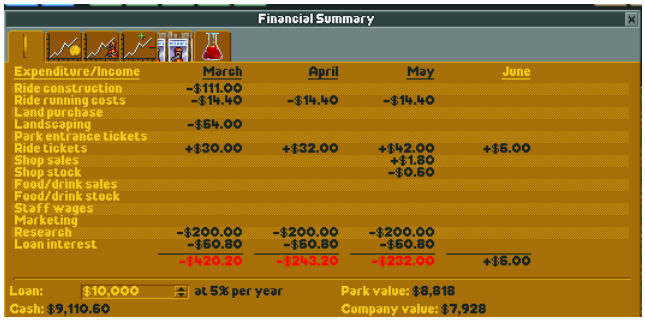
Setup

The tutorial sessions described earlier are required for the students to be able to address the problem presented in this lesson. There are not many skill requirements for the lesson other than solid basic computational skills that have been already presented to students by the seventh grade. The lesson will be presented to a whole group from a single computer connected to a media presentation device like an LCD projector. Teacher will start a new amusement park and raise various concerns during its construction phase that relate to the activity's final objective: profit.

Activity / Gameplay

1. Start Roller Coaster Tycoon II and click on **Start a New Game**. Choose **Electric Fields** from **Beginner Parks**.
2. Begin by showing the **Financial Summary** by clicking on the 

display. Once the **Financial Summary** window opens, point out the simple fact that tickets are generating income, but that, due to other factors (loan interest, research costs, etc.) the park is showing a loss (see below).



3. Recalling form the tutorial, begin building a simple ride from the button.
4. Choose **Miniature Railway** as your first building project.
5. Point out to the class that each construction aspect such as **bulldozing** , **footpaths** , etc. costs money that is deducted from the park's **budget** and contributes to loss of **profits**.
6. Before long, students will begin to volunteer constructive help as to ways of decreasing expenditures while increasing **income**. You can encourage responses by giving hints to the obvious trends.
7. Teacher can continue suggesting other ways to increase profits, like building more exciting rides, increasing ticket prices, etc.
8. Once the financial summary begins to show profit, the lesson has reached its objective. You can now save the park by choosing **save** from the top-left toolbar if you wish to reference the park again later.

Follow-Up

Once students have grasped the general idea of balancing expenditure with income, they are presented with the following questions, a different question for each group, to be worked on in small groups working on computers. Groups will reflect park job descriptions and consist of an engineer, a troubleshooter, a note-taker, and a financial manager. Groups will then report findings to the entire class: (students should have access to a computer lab or at least a ratio of 4:1 of computers in the classroom)

- How would careful planning of the **Miniature Railway's** intended path help with saving money during the construction phase? **(1.1)**
- Which is more frugal: demolishing existing structures to make way for track, or building around obstacles? Does it depend on the particular situation, or is your answer applicable to every instance? **(1.2, 1.3)**
- How important is it to have entrances and exits to your ride at key locations of the park? Although the park is new, and there are no other rides yet, do you think that giving patrons easy access to certain key areas might increase profits? What does this imply about the planning of sites for future rides? **(1.1, 1.2)**
- Discuss the effect of increasing or decreasing the amount of trains running on the track at all times on the profits. **(1.1, 1.2)**
- List the costs involved with the various construction and addition possibilities within the game, listing the costs from least to most expensive. Do you think that having a complete knowledge of all of the

costs involved will help in increasing profits during future building phases? Explain why or why not. **(1.1, 1.2, 1.3)**

Extensions

There are a variety of activities that can be assigned as supplementary practice:

- Students can write an essay summarizing different ways to increase income and reduce expenditure.
- Students can compete in small groups with the objective of creating the most profitable park within certain guidelines.
- Students can create Power Point presentations displaying and charting out trends in their park's profit and loss history.
- Teacher can encourage students to come up with other situations where similar dynamics are at play and make connections to real-life scenarios.
- Students can create dioramas depicting an amusement park with different attractions.

Lesson 2 – Now that you're a Tycoon…

By now you and your students will have gained some confidence in moving about the game, building rides, and understanding the financial aspects of various actions. In this lesson students will work with more sophisticated scenarios and compare new challenges that arise that were not present during the first lesson.

Setup

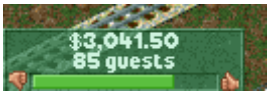
This lesson requires the skills acquired during the first lesson showing trends and patterns associated with profit and loss. The teacher will now progress to more complex park scenarios and compare financial ramifications to earlier park

trends. The lesson will once again be presented to a whole group from a single computer connected to an LCD projector. The objective of the lesson is to show that, although we are spending more to build more complex rides, the income they are generating more than offsets the costs, resulting in eventual profits.

Activity / Gameplay

1. Start Roller Coaster Tycoon II. Click on **Start a New Game** and Choose **Electric Fields** from **Beginner Parks**. You may also load the game you saved in lesson 1 by choosing Continue **Playing a Saved Game** from the second splash screen.

2. Begin to build more advanced rides by choosing the button. You can choose from any of the **Gentle Rides** section, such as the **Ferris Wheel**, **Merry-go-Round**, **Rowing Boats,** etc.

3. Display the **Financial Summary** by clicking on the lower-right toolbar 

and point out the differences between the last lesson and this one, such as the higher amounts for the new rides, and their impact on the overall **budget**.

4. You may now go to the next category of rides, the ever-popular **Roller Coasters**! Because these are expensive rides to implement, the impact on the **budget** is more pronounced. As you progress through the activity, though, you will notice the income increase after an initial rapid drop in profit.

5. Once you have built the rides, conclude that, even though we are

spending more money, the higher costs of the new rides is being offset by more income being generated by more exciting rides that people want to experience, resulting in higher ticket sales.

Follow-Up

The students by now have learned some very important lessons about mathematical observation and the prioritization of information as it relates to a problem. Students can once again work in the same group configurations presented in lesson 1 in addressing the following questions:

- What did you notice when we began building more complex rides? What happened to our budget? **(1.2)**
- Set up two parks, one with only one ride, the other with three exciting rides. Take careful notes of the budget progress. Which park makes profits after six months (Park Time)? Which park makes more profits after two years? What can you conclude about the building of costly rides? **(1.1, 1.3)**
- Name three ways to increase long-term profits. **(1.2)**
- Which group member had the most important role in decision making (engineer, troubleshooter, financial manager)? Can the group function without one or more of the members? **(1.1)**

Extensions

- The class can take a field trip to a local amusement park and collect data relevant to profit and resource allocation. Students can then analyze the data upon returning to the classroom and present findings.

- Students can extend their learning by showing similar trends of income and profits within other enterprises by conducting Internet research.
- Students can write an essay summarizing their experience with the simulation and how it has changed their view of the financial structure of business establishments.

In summary, Roller *Coaster Tycoon II* is a powerful, interactive tool that teaches kids the important skills of reasoning and identifying relationships within a problem, all while providing hours of endless fun. The teacher is encouraged to take the ideas presented in this guide and customize them to his/her needs, such as different grade levels, subjects, and class configurations. The objective of this guide is NOT to alter your style of teaching or replace it with unfamiliar content, but rather to give you a viable alternative to presenting important standard-based skills in a whole new and exciting manner.

Teacher Resources

Technical Support / Manufacturer Contacts

Infogrames Interactive, Inc.
Live Phone Support (24/7 automated response, 8:00 am – 6:00 pm PST live operator help:
(425) 951-7108 (**NOT** toll-free)
Fax support:
(425) 806-0480 (**NOT** toll-free)
24-7 support available on the internet at:
http://www.ina-support.com

Make sure to review the online manual accessible from the splash screen or within the game. It contains valuable information regarding tutorials, game features, etc.

Internet Resources

Infogrames websites:

http://www.rollercoastertycoon2.com

http://www.us.infogrames.com

http://www.us.infogrames.com/freebies (lots of downloadable free stuff!!)

http://www.ina-community.com (gamer chat – **WARNING**: these chat lines are not monitored – use strong caution around students, as use of chat lines may violate your district's Acceptable Use Policies)

California State Standards:

http://www.cde.ca.gov/be/st/ss/

Math lesson plan websites:

http://mathforum.org/library/resource_types/lesson_plans/

http://www.nytimes.com/learning/teachers/lessons/mathematics.html

http://members.ozemail.com.au/~petehobson/

http://www.iit.edu/~smile/

http://www.thirteen.org/edonline/lessons/index.html

References

Haugland, S.W., & D.D. Shade. (1999). Software evaluation for young children. In Young children: Active learners in a technological age, eds. J.L. Wright & D.D. Shade. Washington, DC: NAEYC.

Atherton J. S. (2003) *Learning and Teaching: Piaget's developmental psychology* [On-line] UK: Available: http://www.dmu.ac.uk/~jamesa/learning/piaget.htm Accessed: 12 December 2004

Milken Exchange on Education Technology. (1999). Will new teachers be prepared to teach in a digital age? A national survey on information technology in teacher education. Santa Monica, CA.

Grabe, M., Grabe, C. (2004). *Integrating Technology for Meaningful Learning*. Boston, MA: Houghton Mifflin.

Smaldino, S., Russell, J., Heinich, R., & Molenda, M. (2005). *Instructional Technology and Media For Learning.* Upper Saddle River, NJ: Pearson Merrill Prentice Hall.

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About the Author

Luciano Latini has been an educator for 17 years with the Los Angeles School District. Mr. Latini received his BA in Spanish Language and Culture in 1990 from California State University, Northridge, and graduated Cum Laude. He holds a California Multiple Subject B-CLAD credential, and is currently serving as Technology Coordinator for his Los Angeles Unified School District school site. Mr. Latini owns a consulting business in Los Angeles, California catering to schools and small businesses for their networking, web development and troubleshooting needs. Mr. Latini is currently working on a Master's Degree in Educational Technology. Having taught in every grade level between K-9th, Mr. Latini has had vast experience in a wide range of educational approaches, fine-tuning his skills as a teacher and coordinator.